

CLAIMS

What is claimed is:

1. A method for encapsulating flip chip interconnects comprises applying a limited quantity of encapsulating resin to the interconnect side of an integrated circuit chip, and thereafter bringing the chip together with a substrate under conditions that promote the bonding of bumps on the interconnect side of the chip with bonding pads on the substrate.
2. The method of claim 1 wherein the step of applying resin to the chip comprises dipping the interconnect side of the chip to a predetermined depth in a pool of resin, and then withdrawing the chip from the resin pool.
3. The method of claim 2 wherein the predetermined depth to which the chip is dipped in the pool approximates a bump standoff height, so that the surface of the resin pool contacts a surface of the chip, so that as the chip is withdrawn from the resin pool some quantity of resin may remain on the chip surface as well as on features that standoff from the chip surface.
4. The method of claim 2 wherein the predetermined depth to which the chip is dipped in the pool is less than the bump standoff height, so that the chip surface does not contact the resin pool, with the result that when the chip is withdrawn from the resin pool some quantity of resin remains only on features that standoff from the chip surface.
5. The method of claim 1 wherein applying resin to the chip comprises providing a reservoir having a bottom, providing a pool of resin in the reservoir to a shallow depth over the reservoir bottom, dipping the chip into the resin pool so that bumps on the chip contact the reservoir bottom, and then withdrawing the chip from the resin pool.
6. The method of claim 5 wherein the shallow depth of the pool over the reservoir bottom approximates the bump standoff height.
7. The method of claim 5 wherein the shallow depth of the pool over the reservoir bottom is less than the standoff height.
8. Apparatus for applying a precise volume of encapsulating resin to an integrated circuit chip, comprising a reservoir having a bottom and means for dispensing a pool of encapsulating resin to a predetermined depth over the reservoir bottom.

9. Apparatus of claim 8 per wherein the reservoir is at least deep enough to accommodate a pool having a predetermined depth that approximates a bump standoff height on the chip.
10. Apparatus of claim 8 wherein the means for dispensing the resin pool comprises means for dispensing a measured volume of resin into the reservoir.
11. Apparatus of claim 8 wherein the means for dispensing the resin pool comprises means for dispensing an excess of resin into the reservoir, and means for removing the excess.